Salt tolerance of slr0813 from *Synechocystis* sp.PCC6803 and SyGT from *Synechocystissp.* PCC6906 in *Arabidopsis*

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Abiotic stress affects the plant growth rates and developments. Salt stress especially, acts as an important limiting factor in agricultural productivity. slr0813, glucosyltransferase from *Synechocystissp.*PCC6803 is one of the up-regulated genes on salt conditions, but has not been characterized its function in microorganism yet. Nevertheless, we here isolated slr0813 from *Synechocystis* PCC6803 and SyGT from *Synechocystis* PCC6906 which revealed the highest homologous on amino acid sequence with slr0813 by 68% identity. *E. coli* strains expressing these genes show enhanced salinity tolerant phenotype compared with control *E. coli*. To confirm of this trait in plants, we introduced these genes into *Arabidopsis*, respectively. These transgenic plants show obviously increased fresh weight, longer root length as well as higher chlorophyll contents than wild type plants on medium containing 80mM and 120mM NaCl for 1 week. Transgenic plants expressing SyGT revealed more effective salinity tolerance than that of slr0813. Our results indicate that over-expression of slr0813 or SyGT gene confers enhanced salinity tolerance on *Arabidopsis*.

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